

7. (Amended) In a locale with a plurality of probes interconnected to a computing device, a plurality of mobile devices, and means to enter messages to and to retrieve information on said mobile devices, an apparatus for position tracking and communication comprising:
- (a) configuring means to place said probes at key locations in said locale ~~with non-overlapping coverage areas~~;
 - (b) modeling means to model said locale with site specific information using a network of states and transitions with probabilities;
 - (c) installing means to deploy said mobile device ~~units~~ for position tracking and communication;
 - (d) installing means to encode each of said mobile devices with an identifier;
 - (e) probing means to send out beacons by said probes periodically;
 - (f) responding means by said mobile device ~~units~~ upon receiving said beacon from said probes;
 - (g) collecting means to gather the whereabouts of said mobile device ~~units~~ to feed to the central data collection device;
 - (h) determining means to calculate the most likely location of said mobile device;
 - (i) messaging means to notify said mobile device with messages; and
 - (j) updating means to calculate possible change to said site specific information.

REMARKS

The claims pending are claims 1-7. Claims 1-7 have been amended to more definitely recite the claimed inventions.

For convenience applicant will respond to the Office Action of Examiner Smith in numbered sections corresponding to the numbers in the Office Action.

1. Examiner Smith has rejected 1-7 under 35 U.S.C. 103(a) as being unpatentable over Heller (U.S. Patent Number 6,154,139).

Heller discloses a method and system utilizing both the radio frequency (RF) and infrared (IR) within a tracking environment. Heller's invention relies on the physical nature of IR signal to determine the location of tracked subject. Each badge (mobile unit) initiates

both RF and IR transmission at a timed interval and can be prompted to do so when a button is pushed. Heller's method switches between different communication modes, thereby conserving energy and extending battery life. Each badge is encoded with a fixed identification data, which is included in each transmission.

The present invention discloses a method and apparatus for position tracking and communication within a defined locale. Contrary to Heller's invention, information can be transmitted to the mobile unit, called tag, for notification either by audio, LED or vibration. These features are used to enhance the system capabilities with public announcement using either audio or display. Also contrary to Heller, the battery power is calculated to limit tag's life span according to the present invention. Together with 2 parts identifier, the present invention allows for reuse of tag's identifier in addition to the obvious benefit--improved efficiency in communication. Information of the tracking environment is modeled using a network of states and transitions with probabilities. This model is used not only to calculate the probable movement of each tag through this defined locale, but also to monitor any unforeseen changes to such locale (useful in an exhibition hall application). When such event occurs, system operator is alerted and this locale model is updated. Furthermore, the communication method disclosed in the present invention is different from Heller's in that the tag responds to beacons from the probes instead of initiating transmission on its own. Queries of whereabouts of tags at various locations are supported for certain applications for better communications.

Claim 1 of the present invention has a diverse preamble from Heller's invention with above-mentioned differences. These differences warrant unique invention from Heller and the state of the art. It is respectfully requested that claim 1 is allowed.

Claims 2-6 are dependent upon claim 1 and therefore should be allowed. Claim 7 is the matching apparatus claim to the method in claim 1, and deserve the same consideration as claim 1.

2. Examiner Smith has considered three prior arts pertinent to applicant's disclosure. These references are made of record and not relied upon in the office action.

These references have been noted.

It should be noted that no new material has been added except those to clarify the original disclosure to overcome Examiner Smith's objections.

Reconsideration of the amended claims and allowance of the application are respectfully